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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/508,805	05/31/2000	ILAN BEN-OREN	22350/12	1999

7590

03/09/2005

MICHAEL J BERGER  
AMSTER ROTHSTEIN & EBENSTEIN  
90 PARK AVENUE  
NEW YORK, NY 10016

EXAMINER
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NASSER, ROBERT L

ART UNIT	PAPER NUMBER
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3736

DATE MAILED: 03/09/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

Application No.

09/508,805

Applicant(s)

BEN-OREN ET AL.

Examiner

Robert L. Nasser

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 19 October 2004.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 112-192 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 112-126, 128-149, 151, 158-176 and 179-192 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☒ Claim(s) 127, 150, 152-157, 177 and 178 are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- ☒ Notice of References Cited (PTO-892)
- ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date 2/14/05.
- ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_.
- ☐ Notice of Informal Patent Application (PTO-152)
- ☐ Other: \_\_\_\_\_.

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Claim 179 is objected to because there is no antecedent basis for the word tuning in the last line, as it was previously referred to as timing.

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 180, 182, and 184 are rejected under 35 U.S.C. 102(b) as being anticipated by Fabinski et al. Fabinski shows an isotopic gas analyzer comprising first and second light sources S1 and S2 having wavelengths characteristic of a first and second isotopic component, first and second sample chambers K1 and K2 each with a sample of a gas to be analyzed, a first reference chamber CC1, having a gas with the first isotopic component therein, a second reference chamber CC2 with a gas having the second isotopic component therein, a first detector E1 detecting transmission through K1 and CC1 of radiation at a wavelength characteristic of the first isotopic component and a second detector E2 detecting transmission through K2 and CC2 of radiation at a wavelength characteristic of a second isotopic component. The detectors detect transmission simultaneously.

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

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The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 112, 114, 116, 118, 125, 128, 129, 130-136, 158, 160, 161, 163-5, 166-168, and 173 are rejected under 35 U.S.C. 103(a) as being unpatentable over Sauke et al in view of Fabinski et al. Sauke et al has a device for measuring a  $^{13}\text{CO}_2/^{12}\text{CO}_2$  ratio including sample chamber and a reference chamber 68 and 70, where the reference chamber has a reference gas containing both the first and second isotopic species (see column 7, lines 45-55). Rather than having two measuring chambers and two reference chambers, the device has one measuring and one reference chamber, where the light from the light source is cycled from a first wavelength characteristic of a first isotopic species to a second wavelength characteristic of a second isotopic species and passed through each chamber. Fabinski shows a system for making the same measurement, where it has 2 sample and 2 reference chambers, each receiving only one of the two measuring wavelengths. From this teaching, it would have been obvious to modify Sauke to use the measuring arrangement of Fabinski, so as to reduce the complexity of design of the system and to reduce measurement time. The system of the combination further has detectors that simultaneously receive the light beams that pass through the chambers. With respect to claim 116, Sauke uses one source emitting two different wavelengths of light. Fabinski shows two different sources to produce the two

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wavelengths. Hence, it would have been obvious to modify Sauke to use two sources, as it is merely the substitution of one known equivalent source for another. With respect to claim 125, the chambers are adjacent so as to remain at the same temperature (see Sauke, column 7, last paragraph). With respect to claims 130-134, and 136 the examiner takes official notice that the recited methods or known methods for analyzing two optical measuring signals for measuring two different components with two wavelengths. With respect to claim 135, Sauke further has a detector 54 receiving null, or zero calibration, signals. With respect to claims 160 and 161, the examiner takes official notice that a nasal cannula or a breathing tube is a known method of providing a gas sample for analysis. With respect to claim 163, Sauke et al further has the zero calibration channel. With respect to claims 164 and 165, the examiner takes official notice that the use of fiber optic cables, i.e. beam homogenizers, is well known to ensure that the light is transmitted in the proper direction. Hence, it would have been obvious to use such a fiber optic cable, to ensure proper operation of the device.

Claims 113, 115, 117, 119, 122, 126, 139-146, 159, 170-172, 174-176, and 191-192 are rejected under 35 U.S.C. 103(a) as being unpatentable over Sauke et al in view of Fabinski et al as applied to claims 112, 114, 116, 118, 125, 128, 129, 130-136, 158, 160, 161, 163-165, 166-168, and 173 above, further in view of Eckstrom. Claims 113 and 115 are rejected in that in column 6, lines 47-62, Eckstrom teaches the equivalence of a single detector and multiple detectors. Hence, it would have been obvious to modify the above combination to use a single detector, as it is merely the substitution of one known equivalent detector for another. The detector detects transmission

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simultaneously from each source. Claims 117, 119, 122, and 139-141 are rejected in that in that Eckstrom teaches the equivalence of having multiple sources with filters (figure 3) or a single source with filters to provide the light at differing wavelengths for the same measurement that is made in the above combination. In either case, the light is modulated with a chopper. Hence, it would have been obvious to modify the above combination to use either source, as it is merely the substitution of one known equivalent for another. With respect to claim 126, the chambers are adjacent so as to remain at the same temperature (see Sauke, column 7, last paragraph). With respect to claims 142-146 the examiner takes official notice that the recited methods or known methods for analyzing two optical measuring signals for measuring two different components with two wavelengths. With respect to claims 170-172 and 174-176, Eckstrom further shows a 4 chamber measuring system where the sample chambers are thermally and pneumatically connected and the reference chambers are thermally and pneumatically connected. Hence, it would have been obvious to modify the above combination to use such an arrangement of chambers, to improve the overall accuracy of the readings. With respect to claims 191 and 192, there is a detector differentiator, i.e. chopper 42, and the device has a detector receiving null signals, as discussed above.

Claim 120, 123, 124, 137, 138, 147-149 and 151 are rejected under 35 U.S.C. 103(a) as being unpatentable over Sauke et al in view Fabinski et al, as applied to claims 112, 114, 116, 118, 125, 128, 129, 130-136, 158, 160, 161, 163-168, and 173 above, further in view of Rosenfeld. The above combination does not use a gas discharge lamp. Rosenfeld et al is a gas analyzer that does. From this teaching, it would

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have been obvious to modify the above combination to use a gas discharge lamp, as it is merely the substitution of one known light source for another. With respect to claims 137, 138, 147-149, and 151, applicant has not stated that the type of discharge lamp solves a stated problem or is for a particular purpose. Accordingly the exact type of discharge lamp used would have been a matter of design choice to one skilled in the art, as all discharge lamps appear to function equally as well in the present environment.

Claim 121 is rejected under 35 U.S.C. 103(a) as being unpatentable over Sauke et al in view of Fabinski et al and Eckstrom, as applied to claims 113, 115, 117, 119, 122, 126, 139-146, 159, 170-172, 174-176, and 191-192 above, further in view of Rosenfeld. The above combination does not use a gas discharge lamp. Rosenfeld et al is a gas analyzer that does. From this teaching, it would have been obvious to modify the above combination to use a gas discharge lamp, as it is merely the substitution of one known light source for another.

Claim 162 is rejected under 35 U.S.C. 103(a) as being unpatentable over Sauke et al in view of Fabinski, as applied to claims 112, 114, 116, 118, 125, 128, 129, 130-136, 158, 160, 161, 166-168, and 173 above, and further in view of Kiefer. Kiefer teaches only using the alveolar part of the air to ensure an accurate reading. Hence, it would have been obvious to modify the above combination to only use alveolar air, to ensure an accurate reading.

Claim 179 is rejected under 35 U.S.C. 103(a) as being unpatentable over Sauke et al in view of Eckstrom et al and Rosenfeld et al. Sauke et al shows a device with a

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single source that emits two wavelengths of light that travel through a sample reference, and null chamber, and 3 detectors one for each chamber. Eckstrom further teaches that a single source and multiple sources for producing one wavelength each are equivalent. Hence, it would have been obvious to modify Sauke to use multiple sources, as it is merely the substitution on one known equivalent for another. In addition, since the detector detects all 4 wavelengths, it inherently has a differentiator to distinguish the different wavelengths. The above combination does not use a gas discharge lamp. Rosenfeld et al is a gas analyzer that does. From this teaching, it would have been obvious to modify the above combination to use a gas discharge lamp, as it is merely the substitution of one known light source for another.

Claims 181, 183, 185-187, and 190 are rejected under 35 U.S.C. 103(a) as being unpatentable over Fabinski et al in view of Eckstrom. Claims 181, 183, and 185 are rejected in that in column 6, lines 47-62, Eckstrom teaches the equivalence of a single detector and multiple detectors. Hence, it would have been obvious to modify Fabinski to use a single detector, as it is merely the substitution of one known equivalent detector for another. The detector detects transmission simultaneously from each source.

Claims 186, 187, and 190 are rejected in that in that Eckstrom teaches the equivalence of having multiple sources or a single source with filters to provide the light at differing wavelengths for the same measurement that is made in Fabinski. Hence, it would have been obvious to modify Fabinski to use a single source, as it is merely the substitution of one known equivalent for another.



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Claim 188 is rejected under 35 U.S.C. 103(a) as being unpatentable over Fabinski et al in view of Rosenfeld et al. Fabinski does not use a gas discharge lamp. Rosenfeld et al is a gas analyzer that does. From this teaching, it would have been obvious to modify Fabinski et al to use a gas discharge lamp, as it is merely the substitution of one known light source for another.

Claim 189 is rejected under 35 U.S.C. 103(a) as being unpatentable over Fabinski et al in view of Eckstrom, as applied to claims 181, 183, 185-187, and 190 above, further in view of Rosenfeld et al. Fabinski does not use a gas discharge lamp. Rosenfeld et al is a gas analyzer that does. From this teaching, it would have been obvious to modify Fabinski et al to use a gas discharge lamp, as it is merely the substitution of one known light source for another.

Claims 127, 150, 152-157, 177, and 178 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims. Claim 127 defines over the art of record in that none of the art has the reference gas include part of the sample has, as claimed. Claim 150 defines over the art of record in that none of the art maintains the sample at a pressure below atmospheric. Claims 152-155 define over the art in that none of the art has the same isotopic concentration in the sample and reference cells. Claims 156 and 157 define over the art in that none of the art have a chamber with an adjustable length, as claimed. Claims 177 and 178 define over the art in that none of the art has the pressure lowering means, as claimed.

Applicant's arguments filed 10/19/2004 have been fully considered but they are not persuasive.

With respect to Fabinski and claims 180, 182, and 184, applicant has asserted that Fabinski does not have a wavelength stable source of wavelengths characteristic of the first and second isotopic components. Applicant's argument is not understood. The examiner notes that the source of Fabinski has the wavelengths in question, in order for it to work properly. In addition, it is the examiner's position that the source outputs the same wavelengths when used, so it is "wavelength stable." There is no limiting definition of the term on the record, so the examiner must give the term its broadest reasonable interpretation. Accordingly, it is the examiner position that Fabinski's source is a wavelength stable source of the enumerated wavelengths.

With respect to the combination of Sauke and Fabinski, applicant has asserted that the techniques in Sauke and Fabinski are mutually exclusive and teach away from each other. First, the examiner notes that teaching away requires a positive teaching not to use the other method. This is not present in either reference. Second, it is the examiner's position that the techniques of Fabinski and Sauke are well known to be interchangeable, as evidenced by US Patent 5127406 to Yamaguchi et al (see figures 1 and 2).

With respect to claim 179, applicant has asserted that the arrangement of Eckstrom does not have different timing characteristics. The examiner disagrees. Eckstrom shows 4 measuring wavelengths and states that the source produces a rapid repeated sequence of wavelengths for the channels. The word sequence in and of itself

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means each channel is measured at a different time. In addition, there is preferably only one detector, which requires some type of modulation to detect 4 wavelength. Given that there is no frequency modulator shown, there must then be a time modulator, i.e. chopper wheel 42, producing different timing characteristics. Since each wavelength has a different timing characteristic, in the figure with different sources, each must have a different timing characteristic.

With respect to the detection differentiator, the chopper works together with the detector and the processor to differentiate the different wavelengths as they impinge on the detector.

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

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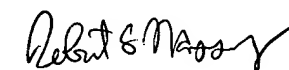
Any inquiry concerning this communication or earlier communications from the examiner should be directed to Robert L. Nasser whose telephone number is (571) 272-4731. The examiner can normally be reached on Mon-Fri, variable hours.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Max Hindenburg can be reached on (571) 272-4726. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Robert L. Nasser  
Primary Examiner  
Art Unit 3736

RLN  
March 4, 2005



ROBERT L. NASSER  
PRIMARY EXAMINER